

SALTON SEA ADVISORY COMMITTEE MEETING

March 16, 2005

10:00 – 4:00

**Metropolitan Water District
Los Angeles, CA**

Welcome and Introductions

Mike Chrisman, Secretary for Resources, welcomed the Advisory Committee members and led introductions of those present (see attached list).

Updates from the Resources Secretary

Secretary Chrisman provided an update on progress since the January 2005 meeting. Two Technical Committee meetings that addressed the on-going and planned selenium and air quality analysis were held in early March. Another Technical Committee meeting is planned for mid-April to discuss short and long-term data collection and research needs. Secretary Chrisman expressed his appreciation for the assistance provided by the U.S. Geological Survey (USGS) Salton Sea Science Office on the selenium work.

The Department of Water Resources (DWR) will be co-sponsoring California Audubon's workshops on wildlife-friendly agricultural management practices. The workshops are intended to provide information to growers interested in participating in Audubon's agricultural lands stewardship program, which would contribute to long-term support of wildlife habitat in the Salton Sea watershed.

The U.S. Bureau of Reclamation (USBR) has agreed to work with DWR to develop a new version of its Salton Sea Accounting Model for the ecosystem restoration project, a model version that can handle the different geometries of various alternatives. A modeling technical committee will be established for Committee members who would like to be involved in this activity.

Secretary Chrisman also provided an update on the contracts with the Salton Sea Authority (SSA). DWR and the SSA developed a detailed scope of work for the recreation and economic study, and the SSA was authorized to begin work in mid-February. The scope of work for the selenium treatment pilot project is under preparation.

Public Comments

Pat Cooper, Office of Senator Denise Ducheny, thanked the Resources Agency for holding the initial series of public meetings in the Salton Sea watershed. Committee member Michael Cohen also briefly reported on the USGS Salton Sea Science Office's

recent review of the North Lake concept, (Integrated Water Management Plan), and provided copies of the review.

Summary of Public Meetings

Joe Grindstaff, Chief Deputy Director of DWR, provided a summary of the public meetings held throughout the Salton Sea watershed in late February and early March. Mr. Grindstaff noted that the meetings were well attended and the public was actively involved. Questions and comments from the meetings will be categorized and responses will be prepared in the form of facts sheets and other materials. The next series of public meetings is planned for mid-April.

Project Status and Update on Project Schedule

Gwen Buchholz, CH2M HILL, noted that the following reports have been completed and provided to Committee Members: Selenium Summary, Selenium Data Gaps, Selenium Treatment Technologies, and the compiled Air Quality Report. The air quality and selenium field work, including sediment and water quality sampling, biota sampling and wind tunnel tests, will be initiated shortly.

Owens Lake Dust Mitigation Program

Richard Harasick, Los Angeles Department of Water and Power (LADWP), provided an overview of LADWP's dust control efforts at Owens Lake, a site similar in scale to the Salton Sea. Mr. Harasick noted that the exposed lakebed was the largest single source of particulate matter in the U.S. Because of human-health-driven regulatory requirements, LADWP undertook an aggressive dust management program at the lake. Overall, LADWP will implement dust control measures on 29.8 square miles of the lakebed, two-thirds of which has been completed.

Mr. Harasick noted that various alternative dust control measures have been tested. Shallow flooding, vegetative cover, and gravel cover are the three primary categories of control measures used on the lakebed. LADWP has implemented about 19.8 square miles (about 12,700 acres) of shallow flooding. This control measure requires about 4 acre-feet of water per acre of flooded area. Four square miles (2,600 acres) of vegetative cover (saltgrass) have been planted on the lake bed. Vegetation cover requires about 7 acre-feet per acre to prepare the soil and about 2 to 2.5 acre-feet per acre to sustain the vegetation. Vegetative cover requires a larger capital investment than shallow flooding. The saltgrass is irrigated with sub-surface drip irrigation using a blend of aqueduct and higher salinity water. No efforts have been made to thin or harvest the saltgrass.

LADWP has not yet used gravel as a dust control measure because of cost considerations and because the maintenance requirements for this control measure are not well understood at this time.

Mr. Harasick noted that the time and cost to implement the various dust control measures was greater than LADWP had anticipated. However, costs per acre for the dust control measures have been reduced over time as lessons are learned from early phases of implementation. Total capital costs to date are \$282 million. Annual operations and maintenance costs are about \$17 million, and annual water costs are about \$18 million. These costs are passed onto LADWP's customers. Annual costs will continue at some level in perpetuity.

LADWP is meeting the Great Basin Unified Air Pollution Control District's flooding or vegetation coverage requirements and the dust control measures have been successful in reducing the amount of dust from the lakebed.

Air Quality Efforts

Pamela Vanderbilt, Carrie MacDougall and John Dickey of CH2M HILL along with Vic Etyemezian of Desert Research Institute (DRI) provided an overview of the on-going air quality efforts.

Ms. Vanderbilt provided an overview of the air quality aspects of the project's implementing legislation, the air quality work plan, the air quality team, and the team's efforts. It was noted that existing air quality data will be used to the extent possible. However, short- and long-term data collection will be needed to better identify and characterize the impacts of the proposed project.

Ms. MacDougall provided an overview of the analysis tools and methodologies that may be used to analyze the impacts of the proposed project on wind-blown dust. It was noted that there is no one definitive model describing emissions of fugitive dust from desert playas, and therefore, a two-pronged method will be used to conduct the analysis. This method will use two slightly different modeling tools to analyze each alternative.

Dr. Dickey provided an overview of the playa (exposed lakebed) emissivity assessment, and noted that an analysis is underway to better understand how the exposed playa will behave. Various factors play a role in the amount of emissions from the playa, including land uses on the exposed surface, the chemical and textural composition of the soil, the presence or absence of a salt crust, climatic conditions, and disturbances of the crusted surface (including natural disturbance such as blowing sand). The similarities and differences in the chemical composition of the salts at the Salton Sea and Owens Lake were briefly discussed. Dr Dickey noted that the Western Regional Air Partnership is going to analyze archived sediment samples.

It was noted that the water agencies are responsible for mitigating air quality impacts of the Quantification Settlement Agreement (QSA) water transfers, although the water agencies' financial responsibilities for environmental mitigation are capped at a set amount. The State is responsible for mitigating water transfer environmental impacts beyond that funding cap. The State is also responsible for mitigating impacts of the

restoration project. Existing air quality concerns are being addressed by the local air pollution control districts and are not the responsibility of the water agencies or the State in relation to this project.

Dr. Etyemezian noted that DRI is providing peer review and technical support for the on-going air quality analysis. DRI is also conducting wind tunnel tests, which are field tests to measure the potential playa emissivity at specific points. These tests will be conducted with a Portable In-Situ Wind Erosion Laboratory, or PI-SWERL. The tests will be conducted on a variety of soil types near the existing shoreline and on areas of exposed playa (areas that were previously submerged). The results will be used in conjunction with emissivity models to characterize emissions potential of exposed playa.

Update on QSA Mitigation Requirements

Jim Sheridan and Kim Nichol, California Department of Fish and Game (DFG), provided an update on the implementation of the QSA mitigation requirements. Ms. Nichol noted that the Imperial Irrigation District and the San Diego County Water Authority are currently working through a few items before proceeding with work on the Natural Community Conservation Plan (NCCP).

Larry Purcell, San Diego County Water Authority, noted that the NCCP is anticipated to be completed by the December 31, 2006 deadline identified in the Environmental Cost Sharing, Funding, and Habitat Conservation Plan Development Agreement. The NCCP will build on the Habitat Conservation Plan prepared as part of the QSA water transfers.

A Committee member requested that an overview of the NCCP and how it fits into the Ecosystem Restoration Plan be provided at a future committee meeting.

Selenium Sources and Control Efforts in the Upper Basin

Paul von Guerard with the USGS provided an overview of the selenium sources and control efforts in the Upper Colorado River Basin, in response to a request from the Committee for a presentation on this topic. Selenium is a naturally occurring element found primarily in marine sediments. Infiltration of water through selenium-rich geologic formations and soils oxidizes selenium to a soluble form that can be mobilized and transported. The Gunnison and Grand Valley areas of the Upper Basin are estimated to account for more than 50 percent of the selenium loading to Lake Powell in the Upper Basin.

The USGS is conducting a variety of studies to identify source areas, changes in loading under different land use types and amounts of disturbance, and potential control measures. Many of the on-going efforts have been conducted in conjunction with the on-going salinity control efforts in the Upper Basin. Although a variety of studies have been conducted on salinity control efforts and their effectiveness, very few studies have been conducted on the effectiveness of salinity control measures to reduce selenium, or

the effectiveness of selenium specific control measures. However, salinity control efforts are thought to be effective at also controlling selenium loading.

It was noted that there is considerable interest from landowners in the Upper Basin in the salinity control efforts. In general, the program is limited by funding and not by interest from landowners.

In the discussion, Mr. von Guerard noted that changing land uses, and specifically, municipal development on undeveloped and agricultural lands, may result in additional selenium loading. In general, municipal uses of water in the area and specifically, landscape irrigation and recreation/water supply ponds, are believed to result in increased percolation and mobilization of selenium. The effect of changing land uses on selenium mobilization is the subject of on-going and planned studies. However, it was noted that federal funding for selenium studies has recently been substantially reduced.

Rob Thomson, CH2M HILL, noted that a report will be prepared that identifies the extent of selenium loading in the Upper Basin, control measures that are being implemented, and load reduction options.

ABMet® Treatment Technology

Scott Irvine with the USBR provided an overview of the ABMet® pilot studies being conducted for the San Joaquin Valley agricultural drainage program. The bioreactor technology uses site-optimized microbial cultures for removal and uptake of metals from specific environmental settings.

The pilot studies are part of the larger San Luis Drainage Feature Re-evaluation Program being conducted by USBR. Two pilot studies have been conducted in the San Joaquin Valley and one pilot study is planned. In potential full-scale application in the San Joaquin Valley, the bioreactor technology would be used to remove selenium from brine concentrate from a desalter. Results from the pilot studies indicate that the treatment technology reduces selenium concentrations; however, results have been sporadic and various problems were encountered. The upcoming pilot study in the San Joaquin Valley will test solutions to the problems identified in the first two studies. An analysis of the speciation (chemical form) of the selenium, which relates to its toxicity, will also be conducted as part of the upcoming study. USBR expects to release a draft environmental impact statement (DEIS) for the drainage feature re-evaluation in the fall of 2005. The DEIS will include estimated costs of selenium treatment.

The treatment technology has been tested in salinities up to 30,000 milligrams per liter. Pilot studies conducted by others have also shown the technology to be effective in low temperatures (study was for the removal of arsenic). It was noted that selenium concentrations in inflow water for the San Joaquin Valley pilot studies are generally higher than selenium concentrations seen in the Imperial Valley.

Natural Treatment Methodology in the Everglades

Randy Bushey, CH2M HILL, provided an overview of the natural treatment methodology used in the Everglades, a project area similar in scale to the Salton Sea. As part of the Everglades Construction Project, about 45,000 acres of wetlands in 6 treatment areas were constructed to treat agricultural runoff. The primary constituent of concern for the project was phosphorus. Performance levels were implemented in a phased manner to allow for testing of the effectiveness of various vegetation types and water management actions in earlier phases.

Mr. Bushey identified and discussed various lessons learned in the Everglades Project that may be applicable to treatment wetlands at the Salton Sea.

An overview of treatment wetland projects in California was provided. The similarities and differences between the Everglades treatment wetlands and treatment wetlands at the Salton Sea were discussed.

Inflow Projections and Variability

Ms. Buchholz provided a brief overview of the inflow projections. It was noted that a range of inflows will be used in development and analysis of the alternatives to better account for potential variability over the lifetime of the project. This information will be used to size facilities, such as pipelines and pumping plants. In addition, considerations need to be made for project components that are sensitive to changes in inflows, such as treatment wetlands.

There is a wide range of potential future actions that may change inflows. Analysis of an annual and monthly range of plus or minus 20 percent is proposed to capture the impacts of future uncertainties. Committee members requested supporting information for the 20 percent range and how the range will be applied to alternatives in the Ecosystem Restoration Study for the next meeting.

Development of Alternatives – Status

Ms. Buchholz provided a brief status update on the development of alternatives. A larger number of alternatives will be carried forward for analysis than originally anticipated. This will allow for comparison of alternatives that have been proposed in the past, but may not have been looked at in detail.

Wrap Up / Future Meetings

The next Advisory Committee meeting will be held on May 18, 2005 in Sacramento.

Handouts

Copies of the following presentations and related materials:

- Status of Project Schedule

- Overview of Public Outreach Efforts
- Owens Lake Dust Mitigation Program
- Air Quality Update
- DRI's Capabilities and Role in Support of the Salton Sea Ecosystem Restoration Project
- Update on QSA Mitigation Requirements
- Selenium Studies and Remediation Planning in the Upper Colorado River Basin
- Selenium Sources and Control Measures in the Upper Basin
- ABMet® Treatment Technology
- Everglades Experience in Design, Construction, and Operation of Treatment Wetlands
- Inflow Projections and Variability
- Development of Alternatives
- Integrated Water Management Plan Evaluation (USGS)

ATTENDANCE

Advisory Committee Members or Alternates Present:

Fred Cagle, Sierra Club
 Michael Cohen, Pacific Institute
 Bart Christenson, State Water Resources Control Board
 Kim Delfino, Defenders of Wildlife
 Bill DuBois, California Farm Bureau Federation
 Elston Grubaugh, Imperial Irrigation District
 Rick Gundry, Bureau of Indian Affairs
 Rick Hoffman, Riverside County
 Leif Horwitz, United States Geological Survey
 Gary Johnson, Regional Water Quality Control Board
 Al Kalin, Imperial County Farm Bureau
 Julia Levin, Audubon California
 Dan Parks, Coachella Valley Water District
 Sylvia Oey, Air Resources Board
 Brad Poiriez, Imperial County Air Pollution Control District
 Larry Purcell, San Diego County Water Authority
 Tom Raftican, United Anglers of Southern California
 Jason Rhine, California Waterfowl Association
 Carol Roberts, U.S. Fish and Wildlife Service
 John Scott, The Metropolitan Water District of Southern California
 Vincent Signorotti, Geothermal Energy Association
 Paul Slama, Cabazon Band of Mission Indians
 Mike Walker, U.S. Bureau of Reclamation
 Barry Wallerstein, South Coast Air Quality Management District